Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in this application.

Listing of Claims:

1. (currently amended) A method for ~~determining~~ reducing the work in process at a given time ~~relative cost reduction achieved by the reduction of the complexity of one~~ in the manufacture of one of a product and a series of products ~~compared with improvements in~~ by comparing process activity parameters including ~~at least one of~~ process setup time ~~reduction, product quality improvement, processing~~ and process time per product unit, with the number of different product part numbers processed, ~~the product scrap rate, the product rework rate, rework processing time and average setup to perform rework,~~ and ~~adjusting~~ changing at least one ~~selected ones~~ of said process activity parameters to ~~modify the number of product units in process~~ reduce said work in process.

2. (currently amended) The method set forth in Claim 1 including the ~~step~~ steps of:

determining the aggregate demand in product units per hour based on the number of different product units produced at a facility multiplied by the customer demand rate for respective product units per hour and reducing said work in process by selective reduction of at least one of said product part numbers, said process setup time and said process time per product unit.

3. (currently amended) The method set forth in Claim 2 including the step of:

determining the common minimum batch size for all product units (MINB) for all workstations from the equation:

$$MINB = \lambda \left[\frac{\sum_{i=1}^{N} S}{1 - \sum_{i=1}^{N} \lambda P} \right] = \frac{\Lambda S}{1 - \Lambda P}$$

where λ is the customer demand rate, N is the number of different product part numbers (from i to N), Λ is the aggregate demand for all product units produced in the facility, S is the setup time required to prepare a workstation to produce a batch of product units and P is the time required to process one product unit ~~of the product~~ at the workstation in question.

4. (original) The method set forth in Claim 3 including the step of:

comparing the non value added cost of process time per product unit with the number of product part numbers being processed.

5. (currently amended) The method set forth in Claim 4 including the step of:

determining the common workstation turnover time (WTT) for all workstations processing N product part numbers from the equation: $$WTT = \frac{NS}{1 - \Lambda P}$$

wherein all product units have the same demand, setup time and process time per product unit.

6. (original) The method set forth in Claim 5 including the step of:

comparing the non value added cost of defective product units with the number of product part numbers being produced.

7. (original) The method set forth in Claim 5 including the step of:

comparing the non value added cost of demand in product units per unit of time with the number of product part numbers being processed.

8. (currently amended) The method set forth in Claim 5, including the step of:

determining the average total system inventory in a facility for perfectly synchronized average Work In Process from the equation:

$$\left[\frac{(\Lambda P)J\Lambda S}{1-\Lambda P}\right]+\left[\frac{N\Lambda S}{2(1-\Lambda P)}\right]$$

wherein all product units have the same demand, setup time and process time per product unit.

9. (currently amended) The method set forth in Claim 5 including the step of:

determining the average total system inventory in a facility for setup-on-batch-arrival average Work In Process from the equation:

$$\left[\frac{J\Lambda S}{1-\Lambda P}\right]+\left[\frac{N\Lambda S}{2(1-\Lambda P)}\right]$$

wherein all product units have the same demand, setup time and process time per product unit.

10. (currently amended) The method set forth in Claim 5 including the step of:

determining the average total system inventory in a facility for fully asynchronized average Work In Process from the equation:

$$\left[\frac{NJ\Lambda S}{1-\Lambda P}\right]+\left[\frac{N\Lambda S}{2(1-\Lambda P)}\right]$$

wherein all product units have the same demand, setup time and process time per product unit.

11. (currently amended) A method for ~~determining~~ reducing the work in process at a given time ~~relative cost reduction achieved by the reduction of the complexity of~~ in the manufacture of one of a product and a series of products ~~compared with improvements in~~ by comparing process activity parameters including ~~at least one of~~ process setup time ~~reduction, product quality improvement~~, processing time per product unit[[,]] and the number of different product part numbers processed, ~~the product scrap rate, the product rework rate, rework processing time and average setup to perform rework,~~ at one or more workstations, including the steps of:

determining maximum workstation turnover time to produce one minimum size batch of each product at each workstation (WTT_{max}) from the equation:

$$WTT_{max} = \underset{j=1,J}{Max}\left[\frac{\sum_{i=1}^{N} S_{ij}}{1-\sum_{i=1}^{N}\lambda_i P_{ij}}\right]$$

wherein, i = part product index (i = 1, …, N) and N is the total number of different parts or products, j equals the workstation (j = 1,…, J), J is the number of distinct workstations, λ_i is the customer demand rate for part product i in units per hour, S_{ij} is the setup time required to prepare workstation j to produce a batch of part/product i and P_{ij} is the time required to process one unit of part/product i at workstation j; and

~~and adjusting~~ changing selected ones of said process activity parameters to ~~modify the number of product units in process~~ reduce said workstation turnover time.

12. (currently amended) A method for ~~determining~~ reducing the work in process at a given time ~~relative cost reduction achieved by the reduction of the complexity~~ in the manufacture of one of a product and a series of products ~~compared with improvements in~~ by comparing process activity parameters including ~~at least one of~~ process setup time ~~reduction, product quality improvement~~, processing time per product unit[[,]] and the number of different product part

numbers processed, ~~the product scrap rate, the product rework rate, rework processing time and average setup to perform rework,~~ at one or more workstations, including the steps of:

determining the batch size ($MINB_i$) for N products from the equation:

$$MINB_i = \lambda_i WTT_{max} = \lambda_i \underset{j=1,J}{Max}\left[\frac{\sum_{i=1}^{N} S_{ij}}{1-\sum_{i=1}^{N}\lambda_i P_{ij}}\right]$$

wherein, i = part product index (i = 1, …, N) and N is the total number of different parts or products, j equals the workstation (j = 1,…, J), J is the number of distinct workstations, λ_i is the customer demand rate for part product i in units per hour, S_{ij} is the setup time required to prepare workstation j to produce a batch of part/product i and P_{ij} is the time required to process one unit of part/product i at workstation j; and

~~and adjusting~~ changing selected ones of said process activity parameters to ~~modify the number of product units in process~~ reduce said work in process.

13. (new) A method for reducing the work in process at a given time in a service process by comparing process activity parameters including setup time for one or more steps of said service process, processing time per each of said steps and the number of different steps in said service process, and

changing selected ones of said process activity parameters to reduce said work in process.